We have reason for surprise in these circumstances, that it has learned so much, but for equal surprise that so many persons appear to think it a complete and full-grown science, and that it is entitled to speak with confidence on all the great mysteries of the earth that have been hidden from the generations before us. Such being the newness of man and of his science of the earth, it is not too much to say that humility, hard work in collecting facts, and abstinence from hasty generalization, should characterize geologists, at least for a few generations to come.

In conclusion, science is light, and light is good; but it must be carried high, else it will fail to enlighten the world. Let us strive to raise it high enough to shine over every obstruction which casts any shadow on the true interests of humanity. Above all, let us hold up the light, and not stand in it ourselves.

LETTERS TO THE EDITOR.

**** *Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

Kalmias and rhododendrons.

JUNE 16 of the present summer I chanced to be floating down Crossweeksung Creek in my canoe; and, at a bend in the stream, found myself at the foot of a steep bluff some seventy feet high, which was densely covered with a luxuriant growth of kalmias and rhododendrons in full bloom. The former were laden with magnificent clusters of white, waxy flowers; and the more gorgeous pink rhododendron-blossoms were scattered through them. It was the most beautiful floral display I had ever seen.

On my return home, I turned to the description by Kalm of the smaller of these shrubs, to which Linné gave the generic name it now bears in honor of its discoverer. Kalm writes, "Linnaeus, conformable to the peculiar friendship and goodness which he has always honored me with, has been pleased to call this tree Kalmia." He further says, "The spoon-tree, which never grows to a great height, we saw this day in several places. The Swedes here have called it thus, because the Indians, who formerly lived in these provinces, used to make their spoons and trowels of the wood of this tree. In my cabinet of curiosities I have a spoon made of this wood by an Indian." Again he says. "About the month of May they begin to flower in these parts (central New Jersey), and then their beauty rivals that of most of the known trees in nature. The flowers are innumerable, and sit in great bunches," etc.

Kalm was visiting in New Jersey when he wrote the above; and it may be that where he was at the time (Swedesboro, Gloucester county), the rhododendron is not found. At all events, he nowhere mentions this shrub, which is here known as 'mountain laurel' to distinguish it from the true kalmia. In calling the latter the 'spoon-tree,' has he confounded the two? Certainly his remarks on the character of the wood, and the use to which it was formerly put by the Indians, lead to that conclusion. At present, it would be difficult to find a sufficiently large growth of kalmia to enable an Indian to whittle from it a spoon or trowel of respectable size. From rhododendron-stocks, implements of considerable size can be made; and Professor Kalm's description of kalmia wood is equally applicable to it. He describes it as "very hard, may be made very smooth, and does not easily crack or burst."

In Britton's Flora of New Jersey, Kalmia latifolia is called 'spoon-wood,' which name, I suppose, is derived from the remarks made by Kalm, as above quoted. I suggest that it is a misnomer, and that the remarks on the uses of the wood made by the distinguished Swedish naturalist refer really to the rhododendron.

Considering that Kalm was so careful an observer, was particularly interested in botany, and further, not only enjoyed the friendship of Bartram, but frequently visited him, in whose celebrated garden was a rhododendron-grove, it is strange that no mention is made, in his 'Travels in North America,' of the larger 'laurel,' so called; yet such appears to be the case.

This is an unimportant matter perhaps, but, if I am right, should not go uncorrected.

CHARLES C. ABBOTT, M.D.

Trick of the English sparrow.

A curious freak of the imported sparrow recently came to my notice at Basin Harbor, on Lake Champlain, in Vermont.

The eaves-swallows had attached their mud 'retorts,' as usual, in line under the eaves of the farmer's barn, anticipating, no doubt, a successful and happy house-keeping, notwithstanding a colony of feathered foreigners had encamped about the premises.

At sight of these 'bottle-nosed' dwellings, now arriving at completion, it occurred to the little tramps that these were exactly the thing they wanted; but, as the apartments were not to let, a battle ensued, which resulted in the rout of Lunifrons. The sparrows then took possession of the mud-houses, and furnished them to their own taste. But some of the 'masons' made a successful resistance, and still held the castle; so that often a swallow-family had their arch enemy at next door.

Thus in more ways than one does the impudent little urchin, which has come to us from over the sea, merit the name of *parasite*. Now that the bird has become not only a general nuisance, but a sore annoyance to our native and useful birds, it is no wonder if the cry goes up all over the land, '*The sparrow must be blotted out!*'

F. H. HERRICK.

Achenial hairs of Senecio.

In a paper read before the American association for the advancement of science at Montreal, Professor Macloskie referred to the achenial hairs of some of the Compositae. The paper was afterward published in the *American naturalist* for January, 1883; and here we find a figure showing the tubes issuing from the hairs of Senecio. A beautiful experiment showing these tubes, or rather threads, can be made with the achenes of S. Douglasii. Scraping a few of the hairs from an achene, and placing them on a slide under the microscope with a two-thirds objective, and applying a drop of water to the slide, the threads are seen to uncoil. As soon as the water touches the hairs, the tips seem to burst, and allow the threads to emerge, rapidly twisting round and round in a very snake like manner. The experiment is a most satisfactory one, and can be readily made. These threads were noticed long ago, as Lindley (Veg. king., p. 704–705) speaks of Decaisne having seen them. Lindley says in regard to them, "On placing one of these papillae in water, it immediately separates into two lips, and these emit mucilaginous tubes, which issue forth like wires, spirally unrolling themselves, and finally much exceed the papillae from which they proceed. These tubes are apparently formed by a very considerable number of threads placed one upon the other

in the manner of a skein of thread." I do not know of any explanation of the use of these threads. Can any of your readers suggest a purpose for them?

JOS. F. JAMES.

Cincinnati, O., Aug. 2, 1883.

Seeds of Lepidium.

I regret to observe, by your issue of July 27, that my employment of the expression 'mucilaginous threads' as to the seeds of Lepidium has led your reviewer to understand that I referred to something like the seed-fibres of Collomia. Spiral fibres embedded in mucilage are found on the seeds of Collomia; radiating processes consisting of mucilage, each tipped by a facet of cuticle, are emitted by the seeds of Lepidium virginicum. This is shown on the application of water with staining-fluid to ripe seeds. Other species of Lepidium (including L. ruderale) show the same phenomenon, though the experiment may fail with immature seeds or old herbarium specimens.

G. MACLOSKIE.

Princeton, N.J., Aug. 3, 1883.

["The exotest may bear long hairs (cotton) or spiral threads. . . . In Lepidium (pepper-grass), on being moistened, it darts out mucilaginous threads." It certainly may be gathered from this that the 'spiral threads' and the 'mucilaginous threads' are not the very same. But the darting-out of mucilaginous threads so well describes what one sees in Collomia-seeds and the like, and so poorly answers to what takes place in those of Lepidium, that the reviewer supposed there might be some mixing up of cases. But he simply asked whether the author was sure of the threads in Lepidium. We find nothing to which the name of 'mucilaginous threads' can with any exactness be applied; nor do we think that the term now used of 'radiating processes,' though not widely amiss, gives a clear idea of the case, which we should describe thus:—

A superficial pellicle of the seed-coat of Lepidium consists of a single and continuous layer of cells, the thick walls of which are at maturity converted into mucilage, or into an isomer of cellulose, which swells up into mucilage 'upon the application of water.' But the water acts so promptly in forming the *limbus* around the seed or its section, that we fail in that way to get an intelligible view of the structure and the nature of the process. To do this, however, we have only to soak thin sections of the seed in strong alcohol, examine in them the unaltered mucilage-cells, and then add a little water by degrees. The cells then swell up slowly, push outward radially (for mutual pressure prevents lateral expansion at the beginning), become wedge-shaped or pear-shaped as they farther protrude, and at length form the well-known mucilaginous *limbus*. Dr. Macloskie will be interested in repeating this experiment, and will accept our apology for partially misunderstanding him.]

KONKOLY'S ASTRONOMICAL INSTRUMENTS.

Praktische anleitung zur anstellung astronomischen beobachtungen, mit besonderen rücksicht auf die astrophysik, nebst einer modernen instrumentenkunde. Von NICOLAUS VON KONKOLY. Braunschweig, *Vieweg*, 1883. 912 p., 345 illustr. 8°.

THIS is an important but at the same time a disappointing work. It contains the description and representation of nearly all the principal modern astronomical instruments, and presents such a comprehensive summary as can be found in no other existing book. The numerous illustrations, largely derived from the business catalogues of leading instrument-makers, are generally excellent, and the mechanical execution and press-work are admirable. Undoubtedly the book is one which must have a place in every astronomical library.

At the same time, the work is far from exhaustive, omitting all mention of many of the latest and most useful improvements; and it is not always accurate in its description of those it does notice. Nor does it deal in any thorough or satisfactory manner with the theory of the instruments described. It is so full and so good, that it is a great pity that it is not still better and still more complete, as it easily might have been.

The first chapter, on time-keepers (*uhren*), describes, among clock-escapements, only the old Graham dead-beat and a duplex of Jürgensen's. There is no notice of Airy's detached escapement, now in use at Greenwich, nor of any of the numerous and excellent gravity-escapements now so common in England and this country. The account of electric make and break circuit apparatus is for this reason unsatisfactory, since only escapements of the detached class admit of a simple break-circuit which does not affect the pendulum. The author treats the subject rather extensively, describing no less than twelve different forms of contact apparatus, some of them very elaborate and complicated. The antiquated contrivances of Locke and Mitchell are described as if they continued to be in use.

The second chapter, a short one, deals with the different forms of levels and level-testers, and appears to be in all respects satisfactory.

The third chapter treats of instruments for the determination of time. Under this head are included not only transits and transit-circles, but all forms of theodolites, sextants, passage-prisms, etc. There is also a certain amount of information respecting the graduation of circles and the methods of testing their accuracy, i.e., the optical and mechanical arrangements; the mathematical theory remaining untouched.

The next chapter, the fourth, is by far the most extensive and full of any, occupying two hundred and forty-six pages. It treats of equatorials and their mounting, and describes and illustrates nearly all the important modern telescopes. For the most part, it is well done, especially the portion relating to driving-clocks,